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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/679,386

10/07/2003

Mahito Shinohara

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4249

5514 7590 11/15/2007
FITZPATRICK CELLA HARPER & SCINTO
30 ROCKEFELLER PLAZA
NEW YORK, NY 10112

EXAMINER

MISLEH, JUSTIN P

ART UNIT

PAPER NUMBER

2622

MAIL DATE

DELIVERY MODE

11/15/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/679,386	Applicant(s) SHINOHARA, MAHITO	
	Examiner Justin P. Misleh	Art Unit 2622	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 September 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1 - 5 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1 - 5 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 05 September 2007 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) ☐ Notice of References Cited (PTO-892) | 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) ☐ Notice of Informal Patent Application |
| 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) ☐ Other: _____ |

DETAILED ACTION

Note: The Examiner for the present application has changed.

Response to Arguments

1. Applicant's arguments filed September 5, 2007 have been fully considered but they are not persuasive.
2. Applicant argues, "The Yoneyama reference discloses to perform a non-destructive read-out of an image pickup sensor a plurality of times to estimate a final output level of each photoelectric conversion element (pixel) ... Fig. 6 of this reference, referred to in the Office Action, shows changes of respective signal output levels of different photoelectric conversion elements (pixels), appearing during the non-destructive read-out of the plurality of times ... However, this reference fails to teach that the signal level change of one pixel is provided by addition of a signal of another pixel and therefore Yoneyama does not teach the third signal recited in amended independent Claim 1."
3. The Examiner respectfully disagrees with Applicant's position. Yoneyama teaches an image pickup device with high dynamic range. Yoneyama further teaches that multiple exposures take place before a reset is performed on the basis that different pixels will receive different amounts of light on a sensor. The signal values are continuously added until each signal reaches a certain level. The continuously added signals are interpreted as the claimed third signal – the rest level, added to the first signal, and added to the second signal (for a more detailed description see paragraph [0013] – [0014] and figure 6). Contrary to Applicant's assertion, Yoneyama directly corresponds to the newly amended Claim 1.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1 – 5** are rejected under 35 U.S.C. 103(a) as being unpatentable over Hashimoto (US 6,734,906) in view of Yoneyama (JP 03-013705).

6. For **Claim 1**, Hashimoto et al. disclose, a solid-state image pickup apparatus (figure 15) including an array of a plurality of pixel units (S, figure 15), each of the pixel units including a plurality of photodiodes (photoelectric conversion portions a11, a12, a21, a22, figure 15) and one amplification transistor (A1, figure 15) for receiving signals from the plurality of photodiodes (output signals of the photoelectric conversion portions are output via the common amplifier A1, column 9, lines 12 – 13), comprising:

a readout circuit connected to an output line of the amplification transistor (combination of horizontal output lines, amplifier 10, AGC 11, and A/D converter 12, figure 15), for receiving output signals from the amplification transistor via the output line,

wherein the readout circuit system comprises difference means (subtracting amplifier 10, figure 15) for providing a difference signal with respect to a plurality of combinations of any two of first, second and third signals (subtracting amplifier 10 subtracts the CN, or reset level, from the CS in order to get the signal without noise, for a more detailed description see column 9, lines 4 – 37), the first signal corresponding to a reset level of the amplification transistor (the noise signal after resetting which is stored in capacitor CN), the second signal corresponding to

the first signal to which is added the signal of a first one of the plurality of photodiodes (signals of the photoelectric conversion portions are output via the common amplifier A1 and stored in signal storage capacitor CS, this signal represents the signal from the photoelectric conversion portion plus noise).

However, Hashimoto does not explicitly teach the third signal corresponding to the second signal to which is added the signal of a second one of the plurality of photodiodes.

On the other hand, Yoneyama teaches an image pickup device with high dynamic range. Yoneyama further teaches that multiple exposures take place before a reset is performed on the basis that different pixels will receive different amounts of light on a sensor. The signal values are continuously added until each signal reaches a certain level. The continuously added signals are interpreted as the claimed third signal – the rest level, added to the first signal, and added to the second signal (for a more detailed description see paragraph [0013] – [0014] and figure 6).

Hence, at the time the invention was made, it would have been obvious to one of ordinary skill in the art to include the continuous storage of signals before a second reset, as taught by Yoneyama, into the image pickup apparatus, disclosed by Hashimoto, in order to obtain a higher dynamic range.

7. As for **Claim 2**, the combination of Hashimoto in view of Yoneyama further teaches the solid-state image pickup apparatus according to claim 1, wherein the difference means operates a difference between the first signal and the second signal, and a difference between the second signal and the third signal (differential amplifier 10, performs the difference between any two signals that are applied to it, any combination of the signals is inherent).

8. As for **Claim 3**, the combination of Hashimoto in view of Yoneyama further teaches the solid-state image pickup apparatus according to claim 1, wherein the difference means operates a difference between the first signal and the second signal, and a difference between the first signal and the third signal (differential amplifier 10, performs the difference between any two signals that are applied to it, any combination of the signals is inherent).

9. As for **Claim 4**, the combination of Hashimoto in view of Yoneyama further teaches the solid-state image pickup apparatus according to claim 1, wherein the amplification element (subtracting amplifier 10) is an amplification transistor,

wherein the unit cell further comprises transfer means connected between a control electrode of the amplification transistor and the photoelectric conversion elements (fig 15 shows that there are transfer means between the photoelectric conversion portions and the subtracting amplifier 10), and

wherein signal charge stored in each of the photoelectric conversion elements is transferred to the control electrode of the amplification transistor via the transfer means (fig 15 shows that there are transfer means between the photoelectric conversion portions and the subtracting amplifier 10) (applicant also admits in figure 7 that this configuration is known in the art).

10. As for **Claim 5**, the combination of Hashimoto in view of Yoneyama further teaches an image pickup system comprising the solid-state image pickup apparatus according to claim 1, an optical system for focusing light onto the solid-state image pickup apparatus, and a signal processing circuit for processing an output signal from the solid-state image pickup apparatus (figure 20 and column 11, lines 39 – 52).

Conclusion

11. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

12. Any inquiry concerning this communication or earlier communications from the Examiner should be directed to Justin P Misleh whose telephone number is 571.272.7313. The Examiner can normally be reached on Monday through Friday from 8:00 AM to 5:00 PM.

If attempts to reach the Examiner by telephone are unsuccessful, the Examiner's supervisor, Lin Ye can be reached on 571.272.7372. The fax phone number for the organization where this application or proceeding is assigned is 571.273.8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

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system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Justin Misleh
Examiner, GAU 2622
November 13, 2007

A handwritten signature in black ink, appearing to read 'Lin Ye', with a stylized, flowing script.

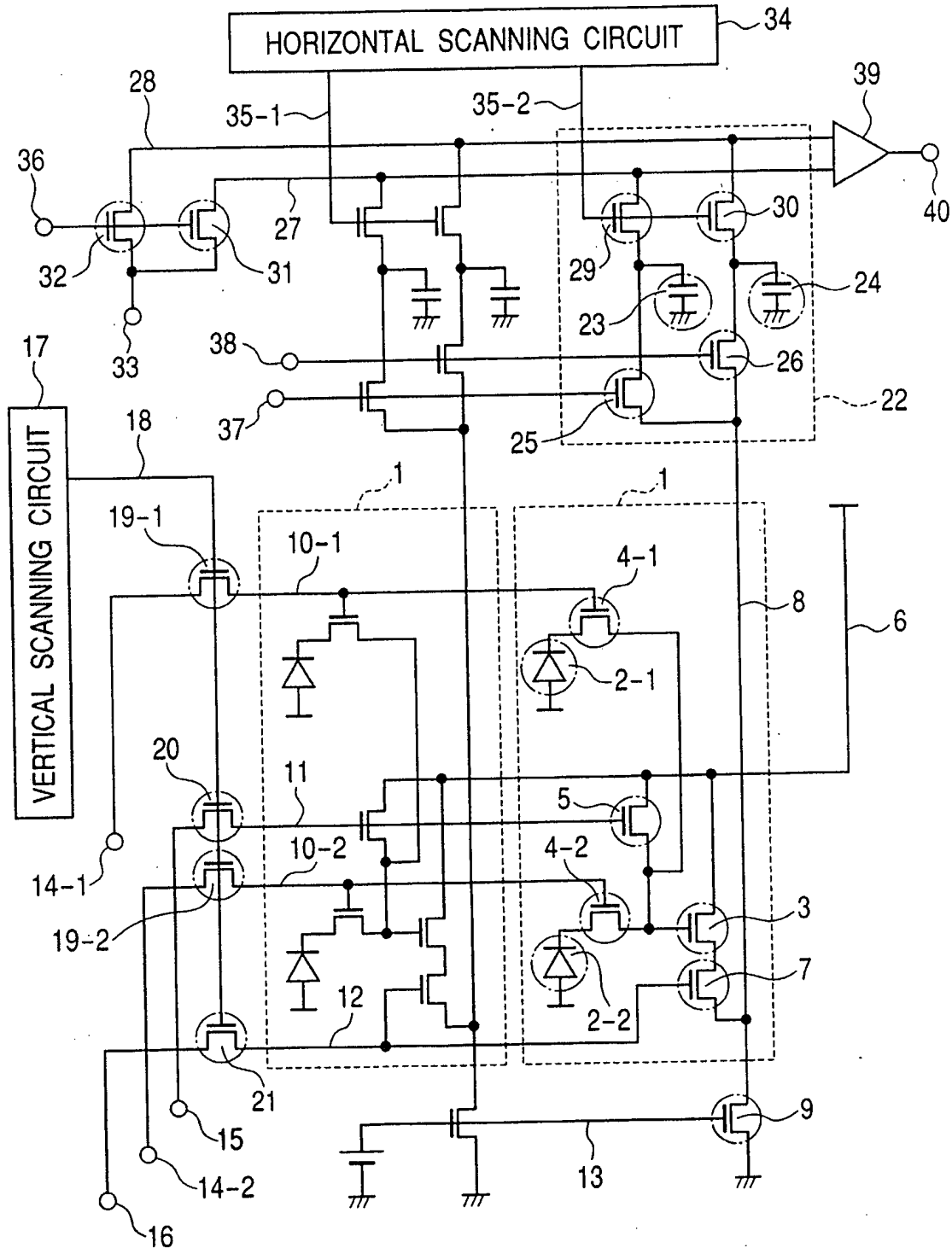
LIN YE
SUPERVISORY PATENT EXAMINER

PLEASE SUBMIT
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PRIOR ART

FIG. 5

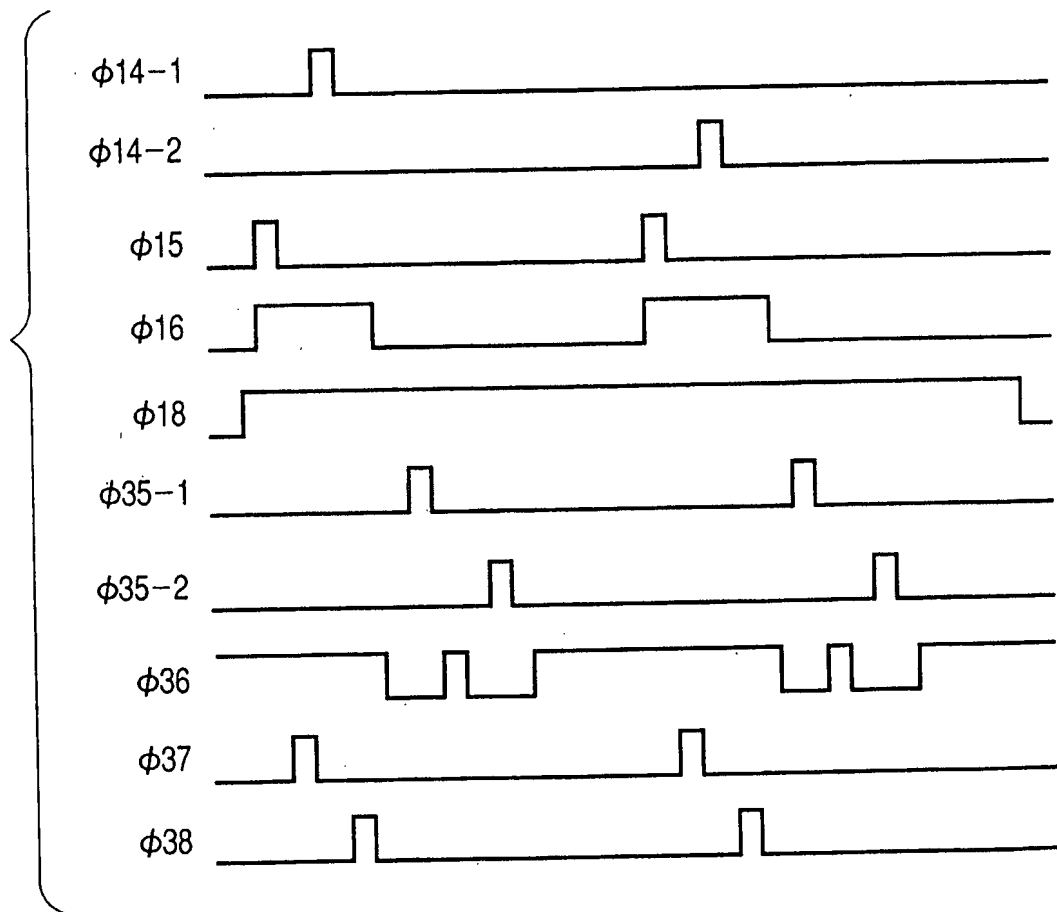


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PRIOR ART

FIG. 6



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PRIOR ART

FIG. 7

